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Letters to the Editor

Sex differences in fingerprint ridge density – Causes and further observations

Dear Sir

Each individual possesses a unique set of minute raised ridges on volar pads called 'friction ridge skin'. These clear and apparent unique outlines of the ridges are called fingerprints. Fingerprints are highly individualistic and forms the basis for personal identification in forensic examinations. Recent studies have reported that females have a significantly higher ridge density than males.^{1–3} This information facilitates the investigating officer to narrow down the investigating process in a particular case and direct the criminal investigation towards suspects belonging to the most likely sex. The higher ridge density in females has been attributed to the level of ridge thickness and it is opined that females tend to have finer epidermal ridge details. Consequently, the females have significantly higher finger ridge density than males in a given area.

In addition to the reason frequently cited, we propose that the difference between the finger ridge density in males and females in a given area may be attributed to the fact that on an average body proportions of males are larger than females thus the same numbers of ridges are accommodated among the males in a larger surface area and thus, a lower density is observed among males. Fingerprint ridge count is controlled by polygenic inheritance and strongly inherited.⁴ Consequently, it may be assumed that given the same genetic make up, males and females should both have the same number of ridges in a fingerprint. Therefore, difference in ridge density between sexes should be correlated with other parameters such as stature and built of an individual.

It is also probable that some associated genes of dermal ridges may reside in the X chromosome. If so, then having a double dose (XX chromosomes in females) of the same feature may lead to complete/strong penetrance. There seems to be an indication that the total ridge count is influenced by the genetic component of the individual especially by the sex chromosome component.⁵ This may also be influenced by height and chromosomal abnormalities.⁶

Another possibility is that some kinds of occupations are likely to enhance or play down the genetic endowment given. The differential ridge density among men and women may also be caused perhaps by the sexual division of labour seen. In-depth research is necessary to see if some of these differences may not be attributable to different kinds of work by studying them in population groups having different work culture. It seems that a part of the genetic endowment allows for a specific number of ridges on the fingerprint. Another part of the genetic endowment as well as various environmental and peripheral physiological characters then go onto shape the final ridge density pattern.

A certain proportion of sex differences in fingerprint ridge density may be caused partly by each of these causes mentioned above. Further research on a large sample in different ethnic groups is suggested to know the exact cause of this kind of variability in fingerprint ridge density among both the sexes.

Conflict of Interest

None declared.

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A response to “Autopsy Profiles of Malpractice Cases” [16(1) (2009) 7–10]

Dear Editor,

We read with interest a recently published research entitled “Autopsy Profiles of Malpractice Cases.”¹ We are impressed with the study bringing out the details of the doctors and specialties implicated in malpractice cases in Turkey. However, we have some reservations.

The authors mention that of the total 525 cases investigated for medical malpractice, in only 167 cases it was actually established, but the title suggests otherwise. The study is actually a profile of medical malpractice claims that also elaborates on the proven malpractice cases. The mean age indicated gives an incorrect impression of the frequency of distribution i.e. the mean age does not fall into the top three groups by frequency and is skewed by the large number of cases having an age of zero (perinatal deaths), rather the median age in the 5–95th percentile would have conveyed a better idea of the age distribution.

We believe that the term ‘physician’ in many places is improperly used and should have been replaced by the word ‘doctor’ instead, as there are many surgeons in the list of ‘physician’ specialties provided. The sum of number of cases in some and the sum of percentages in other tables do not add up to the indicated total below in Tables 2–6. We also are not sure if the term ‘Emergency Unit’ refers to emergency physicians or emergency surgeons. Why does this specialty not exist in Table 5? It would have been interesting to know the details as to how the non-doctor personnel were involved and accused of ‘Medical’ malpractice. We also had a doubt as who a ‘Practitioner’ is, as mentioned in Table 5. Moreover, the authors mentioned ‘clinical units of physicians’ in the title of Table 5 but have written the adjective used to refer to doctors of those departments thus disagreeing with the title.

The authors mention “In this study, the largest age group was formed by perinatal death cases (15.4%). This indicates the significance of stillborn cases among medical malpractice claims in Turkey.” We were unable to decipher the intended meaning, as stillbirth is only one component of perinatal mortality. Statements like “Generally physicians are sued for medical malpractice” and “Considering the duration of hospitalization, 51% was

formed by cases treated from 0 to 24 h, which somehow supports the Emergency Unit’s ranking first,” do not really convey much meaning.

Further, statements like “Differing from other studies, in this study, cases treated in Emergency Units had the highest rate (28%) (Table 2)” and “Contrary to literature, the medical malpractice rate was higher in patients with prolonged hospitalization” are surprisingly not supported by any references. The sentence “... for cases deceasing in the first 24 h, the rate of medical malpractice was 36%, while for the ones living for 21 days and over, this rate was 22% (Table 3)” is not reflected in Table 3 as mentioned by the authors. The categorization in Table 6 is not very appropriate viz., misdiagnosis and mistreatment being placed in different categories when the latter always follows the former.

Conflict of Interest

None declared.

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